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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/535,726

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Paul Van Saarloos

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EXAMINER

Laryea, Lawrence N

ART UNIT

PAPER NUMBER

3735

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/535,726

Applicant(s)

VAN SAARLOOS ET AL.

Examiner

Lawrence N. Laryea

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>22-Aug-2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

At page 4, line 1 "an" should read --a--.

At page 3, line 33 "camera 16" should read --camera 15--.

Appropriate correction is required.

Claim Objections

2. Claims 3,6 and 16 are objected to because of the following informalities:

At claim 3, at line 2 "fort-eight" should read --forty-eight--.

Re claim 16, at line 2 the hyphen between "the" and "cornea" should be deleted.

Re claim 6, at line 2 the period between "CCD and "video" should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-11 and 13-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. With respect to Claims 1, line 2,5 and 7, it is unclear what structure is encompassed by the term by "subsystems".

6. Regarding claims 8-11, the claims are indefinite as they appear to inappropriately blend more than one statutory type of invention. The claims recite a corneal topographer which would appear to indicate an apparatus claim although no apparent structural limitations are set forth to define the apparatus. The body of the claims appear to set forth method steps although no positive, active method steps are recited to define a method claim.

7. Claims 8-11 provides for the use of "a corneal topographer", but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

8. Claims 8-11 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

9. Claim 8, line 1, it is unclear what structure is encompassed by the term "subsystems".

10. Claim 8, line 2-3, it is unclear how the "analysis involves registration of the whole image sequence to compensate for saccadic". It is unclear what "analysis" is being referred to.

11. Claim 8, line 5 recites the limitation "the two edges." There is insufficient

- antecedent basis for this limitation in the claim.
12. Claim 8, line 5 recites the limitation "the slits." There is insufficient antecedent basis for this limitation in the claim.
 13. Claim 8 line 5 recites the pronoun "they." This limitation renders the claim indefinite because one cannot be certain what "they" is intended to refer to.
 14. Claim 8 line 5-6 recite the phrase "shown on the image" renders the claim indefinite because one cannot be certain which "image" is referred to.
 15. Claim 8, line 6 recites the limitation "the image". There is insufficient antecedent basis for this limitation in the claim.
 16. Claim 8, line 9 recites the limitation " all the local shape variations".
There is insufficient antecedent basis for this limitation in the claim.
 17. Claim 8, line 9 it is unclear what "these surface" refers to.
 18. Re claim 9, line 1-2 recites the limitation " the thickness of the cornea".
There is insufficient antecedent basis for this limitation in the claim.
 19. With respect to Claim 10, line 2 it is unclear what "other surfaces" refers to.
 20. Claim 10, line 2 recites the limitation "the anterior chamber".
There is insufficient antecedent basis for this limitation in the claim.
 21. Claim 10, line 2 recites the limitation "the lens". There is insufficient antecedent basis for this limitation in the claim.
 22. Re claim 11, line 2 recites the limitation "the topography data".
There is insufficient antecedent basis for this limitation in the claim.
 23. Re claim 13, line 1-2, it is unclear what "analysis" is being referred to.

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24. Re claim 14, line 2 recites the limitation "the two edges". There is insufficient antecedent basis for this limitation in the claim.
25. With respect to Claims 14, line 2 recites the limitation "the slits".
There is insufficient antecedent basis for this limitation in the claim.
26. Claim 14 line 2 recites the pronoun "they." This limitation renders the claim indefinite because one cannot be certain what "they" is intended to refer to.
27. Claim 14 line 2 is indefinite because one cannot be certain what "the image" is intended to refer to.
28. Claim 15 line 2, it is unclear how "the edges are converted into mathematical curves".
29. Re claim 16, line 2-3 recite the limitation " all the local shape variations".
There is insufficient antecedent basis for this limitation in the claim.
30. Claim 16, line 3 it is unclear what "these surfaces" refers to.
31. Re claim 17, line 1 recites the limitation " the thickness of the cornea".
There is insufficient antecedent basis for this limitation in the claim.
32. Re claim 19, line 2 recites the limitation "the topography data".
There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

33. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

34. Claims 1-9,11-17,19 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by **Xie et al (Patent 6692126)**.

35. Re claims 1, 6-9,11-17,19 and 22: **Xie et al** disclose a corneal topographer, comprising: an illumination projection subsystem configured to project a series of preselected different stationary patterns of one or more slits of light in ordered succession onto the surface of the cornea (**See Col.2, line 40-42**); an image capture subsystem configured to capture an image of each projected pattern (**See Col. 2, line 42-43**); and an image processing subsystem to convert the images into topographical information of the cornea (**See Col. 2, line 44-51**).

36. Regarding claim 2: **Xie et al** teach a projector subsystem including a plurality of LEDs (**33i**).

37. Regarding claim 3: **Xie et al** teach a projector subsystem including less than 48 LEDs producing a similar numbers of slits.

38. Regarding claim 4: **Xie et al** teach multiple slit lamp projectors that are capable of producing less than 20 different patterns.

39. Claim 5: **Xie et al** teach slit light projectors wherein the LEDs are housed together in sets with a common focusing arrangement (**See Col. 6, line 31-33 and line 37-45 and Col. 3, line 16-19**).

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40. Claims 6 and 7: **Xie et al** teach a CCD video camera which is configured with a computer and frame grabber for capturing images of the cornea (**See Col. 4, line 23-27 and Col. 7, line 8-10**).

41. Regarding Claims 8, 11, 13 and 19: **Xie et al** teach slit light projectors that are configured with a camera system (**40**) to capture or generate sequence of images (**See Col. 8, line 27-35**). **Xie et al** teach an image processing where the edges of a slit is detected and the edges information generated from the image processing is used to determine the anterior surface and posterior surface of the cornea. The information generated from the image processing is also used to construct polynomial curves (**See Col. 9, line 15-20**). Also, the topography information is outputted on a personal computer system (**See Col. 4, line 21-26**).

42. Claims 9 and 17: **Xie et al** teach a calculation (**measurement or profile**) of the thickness of the cornea. (**See Col. 2, line 44-51 and Col. 10, line 23-30**).

Claim Rejections - 35 USC § 103

43. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

44. Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Xie et al (Patent 6692126)** in view **Nagano (Patent 5386258)**.

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45. **Xie et al** disclose a corneal topographer wherein a number of slit lights are used to produce an accurate measurement of the thickness of the cornea but fail to teach a measurement wherein reflections from the surface of cornea are used to calculate the volume of the anterior chamber.

Nagano discloses an eye examination device wherein reflections of the surface of cornea are used to calculate the volume of the anterior chamber (**See Col. 13, line 38-44 and Figures 3a and 12a where measurements extend to the middle part of the eye**).

46. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the corneal topographer of **Xie et al** to use the reflections from the surface of cornea to calculate the volume of the anterior chamber in view of the teachings of **Nagano** in order to detect and correct the direction of the visual axis as taught by **Nagano** (**See Col.10, line 35-45**).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Gordon (Patent 5861955) teaches a frame grabber for capturing still images of the cornea.

Cornsweet et al (Patent 4019813) teach an optical apparatus for obtaining one or more measurements of portions of the eye such as the thickness of the cornea, edges of the cornea, the depth of the anterior chamber and the thickness of the lens.

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Schachar (Patent 4606623) teaches eye apparatus for forming, plotting profile images of the cornea and displaying the calculated and measured data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence N. Laryea whose telephone number is 571-272-9060. The examiner can normally be reached on 8:30 a.m.-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor II can be reached on 571-272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LNL


Charles A. Marmor, II
SPE, Art Unit 3735